Airfield Obstruction Reduction Initiative (AORI)
Workshop Summary
22–25 May 00

Monday, 22 May 00

1. Welcome and Opening Remarks:

1.1. Col. Bruce R. Barthold, Commander of AFCESA, welcomed the AORI WG members and emphasized airfield obstruction removal is a very important initiative with special interest at HQ USAF/ILE and the Chief of Staff level. He acknowledged the level of cross-functional expertise assembled to address the pertinent issues and encouraged active participation. He also informed the group he was available to discuss any issue they felt needed his personal attention.

2. Introductions, Purpose of the Meeting, and Rules of Engagement:

2.1. Lt. Col. Kurt Kaisler welcomed the group and discussed the reason M.G. Robbins (HQ USAF/ILE) tasked him to assemble and lead the USAF Tiger Team for this initiative. He provided a brief chronology of events, then discussed the joint HQ USAF/XO/SE/ILE tasking letter sent to the MAJCOMS on 14 Feb 00. He further described the consolidated obstruction report and highlighted the need to develop an USAF-level funding strategy. He indicated we needed to refine the cost estimates and scrub the data input to ensure the database supports our advocating for additional funding to ease the burden of removing the most hazardous obstructions. He asked the MAJCOM representatives what was needed to fix the problem as they see it. Their response included the following items:

- Money and manpower – USAFE
- Education and training, institutionalize a standard process – AMC, ACC
- CE union with other functional representatives and better cross-communication – SE
- Others: Mandate an airfield working group at base level, add airfield criteria block to existing AFIT and Safety courses, include weather folks in the process, improve directives.

3. SAF/IG Report of Review.

3.1. Lt. Col. Kaisler discussed the SAF/IG Report of Review regarding the Misawa Mishap and synopsized the SAF/IGS recommendations and concerns for how we might respond. The recommendations were:

3.1.1. "The Air Force adopt the FAA specifications for Low-Impact Resistant Structures as stated in the FAA Advisory Circular No. 150/5345-45A." Problem: This Advisory Circular only addresses approach lighting system supports and frangibility is a concern for all equipment sited within the airfield environment.

3.1.2. "AF/IL ensure all leadership within Air Force civil engineering units are familiar with, understand, and comply with airfield frangibility requirements." Policy is in place implementing the frangibility requirement. How do we accomplish this goal?

3.1.3. AF/IL ensure the 38th Electronics Installation Group (EIG) brings Project Support Agreements and associated drawings into compliance with Air Force directives regarding frangibility

3.1.4. AF/IL perform a review of the process that the 38th EIG uses for installing structures in clear zones

3.1.5. AF/IL ensure that all MAJCOMS identify all nonfrangible structures within clear zones thorough the Air Force and make removal and replacement of those structures a priority

4. PACAF AORP Briefing

4.1. Mr. Greg Lee, HQ PACAF/CEPR, provided the background on the PACAF Airfield Waiver Reduction Program and its evolution to the Airfield Obstruction Reduction Program. He explained that upon its inception, they had 2000-plus waivers on books with no funding or program to remove or correct them. Their previous efforts were more directed to justifying permanent waivers. He indicated having adequate design monitors was the primary problem within PACAF, and felt the problem was also common Air Force wide, particularly with design and siting.

4.2. Mr. Lee explained PACAF formed a cross-functional Airfield Working Group who subsequently developed the Airfield Waiver Reduction Program (later changed to AF Obstruction Reduction Program). Phase I -- After the Misawa crash – DO, SE, CE met and defined four hazardous areas to simplify the ORM process. These areas were built from the centerline out and comprise the basis for a programmatic funding strategy. Phase II -- Funding was fine tuned with no-cost items promptly removed. HQ PACAF/CV letter was necessary to get wing-level action to fix these items.

4.3. Mr. Lee also emphasized ATSEP has a process to fix these, yet it should not be the sole guide since it only occurs every two years. Annual waiver submittal should catch these problems.
Bottom line PACAF recommendations to the Working Group:

- Gather all obstruction data (not just waivers);
- Discourage grouping of obstructions (except trees);
- Track all waivers/obstructions through a Computer Aided Design Geographic Information System (CAD GIS) database program, such as the ACC Airfield Obstruction Management System (AOMS) or the PACAF Airfield Taxiway Obstruction Management System (ATOMS), which uses Access and Arcview software (both PACAF and ACC systems are identical in all aspects except name). These programs, developed under contract and track each waiver on the E-series maps, have a description and a picture of each obstruction. When demonstrated to the Airfield Management experts in PACAF, they expressed a strong desire to unilaterally field throughout PACAF. PACAF has recently funded implementation of ATOMS for each of its bases.

5.0. HQ PACAF -- Apply International Civil Aviation Organization (ICAO) or Federal Aviation Administration (FAA) criteria?

5.1 Capt John Gasner, HQ PACAF/DOYA, proposed PACAF could reduce obstructions by 50 percent and cost from $100M to $50M simply by adopting either FAA or ICAO criteria. He further explained how PACAF had formed an IPT to discuss impact of applying ICAO/FAA criteria, and described their process and progress to date. He indicated they broached this subject because of their need and desire to reduce the number of waivers and free up needed resources for new requirements. Specifically, he indicated application of either set of criteria would allow addition of a second runway at Misawa. However, he also indicated they had determined ICAO criteria would not meet PACAF or USAF requirements for Clear Zones and they would continue their evaluation of the feasibility of adopting FAA criteria.

6. Airfield Obstruction Reduction Initiative (AORI) Database Overview.

6.1. Mr. Ates presented and discussed the raw data provided within the obstruction reports submitted by the commands and the bases (reports provided from the HQ USAF/XO/SE/ILE Memo, 14 Feb 00). He described AFCESA's efforts to fine tune the numbers and clear up erroneous data submissions. Specifically, dollar values improperly entered (entered in whole dollars vice thousands of dollars) and inclusion of projects considered impractical to correct. He indicated such errors had resulted in erroneous inflation of the overall cost estimate to eliminate all USAF airfield obstructions, and requested the MAJCOM representatives assistance in reviewing and correcting the submissions. Lt. Col. Kaisler reiterated the need for accurate data and a command prioritization strategy, and asked the representatives for input on how long they thought it might take to accomplish a thorough review. The group agreed 30 days should allow sufficient time to accomplish that goal. AFCESA agreed to provide the command representatives a combined listing of obstructions by command to facilitate a command-level review.

7. Review of USAF/FAA/etc Criteria.

7.1. Mr. Ates provided an overview of USAF and civil airfield geometric standards for imaginary surfaces. He discussed the differences in detail, as well as the need for the differences. He provided a review of the purpose and need for waivers, defined and discussed permissible deviations and exemptions, explained their purposes, and discussed waiver approval authority for temporary and permanent waivers. He further provided explanation of the policy and background for decision to allow Installation Commander approval of airfield obstruction marking waivers.

There was much discussion regarding what forum could be used to identify the airfield obstruction problems to the wing commander, including the Airfield Operations Board, Safety, Airfield Managers, and the Facility Board. The general consensus was Safety and the Airfield Manager through the Airfield Operations Board should provide information to the Operations Group Commander representative to the Facility Board to advocate for resources.

7.2. Frangibility.

7.2.1. Mr. Jim Lafrenz addressed the group to describe the purpose and function of frangible designs for airfield structures. He indicated the key for application is the airfield environment along the immediate path of flight nearest to the runway and the path of the airplane on the ground. He defined frangible as an object designed to break away or collapse with any imparted velocity but indicated this condition is component or element specific. He further indicated most engineers do not design for specific loads but rather use rules-of-thumb or employ designs used by other bases assuming "if it worked for them, it will work for us", and are far to conservative. The fallacy of this mind-set is that, as a rule, you end up with designs that give more consideration to operation of the equipment than to the intended function. He showed some examples of telephone sets and switched-power disconnects on 12-inch by 12-inch by 36-inch tall concrete piers installed in the airfield environment. Obviously, these mounting foundations are not realistic for this environment. He indicated the blunders of criteria were ultimately a CE responsibility because more often than not, the engineers would follow previous rules or standards that were originally done wrong. He indicated the 38th EIG had established a construction standard that permitted repeated violations of published AF criteria through their Project Support Agreements and indicated the flight safety personnel he had met with were not aware of the magnitude of the problem. He made the following recommendations to the group:

- Define limits of applicability for frangible designs;
- Establish a process to look at each system/component and develop frangible designs within the technical limits of the equipment;
- Do not consider cost as a factor;
- Permissible deviations should not automatically be excluded from frangibility requirements.

8. USAFE Briefing.

8.1. Mr. Geno Patriarca, HQ USAFE/CEPP, provided an overview of the USAFE Waiver Program, the status, and their internal debate over how to apply USAF and NATO airfield criteria at their bases. He provided a comparison of the requirements and synopsized the impact in the various countries where they have bases. He indicated they had performed a mishap analysis of incidents between 1978 and 2000 and found application of NATO criteria would not increase risk. He described the command's effort to establish an airfield working group, their approach to the mishap evaluation, how they plan to adopt a single set of criteria, set up a geographic database system, and then work with their bases to fine tune the database. He further indicated they plan to use the data from this effort to identify requirements and obtain funding to remove obstructions.

9. Review FAA Criteria and Procedures:

9.1. Major Mat Kundrot introduced himself as a Civil Engineer and Civil Airport Consultant, working with HQ USAF/ILEB in a Reserve status. He provided a detailed briefing on civil airfield design standards for Runway Safety Areas, Obstacle Free Zones, and Object Free Areas. He defined the Federal Aviation Regulation (FAR) Part 77 surfaces as well as threshold siting criteria and the affects of obstructions and obstacles on these surfaces.

9.2. Major Kundrot further expounded on the differences in Civil and Military FAR Part 77 surfaces and provided rationale for these differences. He further explained he had good insight on these differences from his experience in the USAF as a pilot for more than ten years.

10. End of Day Wrap-up Discussion.

10.1. Lt Col Kaisler addressed the group to wrap up the first day of the workshop. He summarized that a great deal of information had been shared over the course of the day.

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11. USAF Clear Zone Study.

11.1. Ms. Lynn-Engelman briefed the USAF Clear Zone review prompted by HQ AMC/DO's request for the Air Staff to consider adopting FAA Runway Protection Zone Dimensions vice the 3,000-feet by 3,000-feet USAF Clear Zone dimensions (see briefing titled "AORI Clear Zone study status -Engelman.ppt"). She indicated the response and report to AMC is being drafted. The conclusion arrived at by the Clear Zone Tiger Team was not to reduce the size of the 3000 x 3000 clear zone at this time. We do recognize the validity of some of AMC's concerns, but feel they can be addressed through policy modification, and clarification of exiting guidance and definitions.

12. Air Force Obstruction Evaluation/Airport Airspace Analysis (OE/AAA) Program.

12.1. Ms. Terri Johnson USAF Representative to the FAA's Southeastern Region, briefed the Obstruction Evaluation/Airport Airspace Analysis 2000 program and the FAA database. The purpose of this effort is to identify obstructions and protection of USAF airfields through the use of advanced automation technology to produce accurate results, and instituting policy and procedures to provide consistency throughout the regions. This program automates the effort to identify structures that may affect airfields. Currently, they are working with HQ USAF/XOOR to incorporate the evaluation and analysis process into AFI 13-201, *Air Force Airspace Management*, and 13-203, *Air Traffic Control*. They are assisting in the rewrite of FAR Part 77 to reflect new criteria and assisting CE to identify obstacles that have or will require waivers and off airfield intrusions within ten NM of the airfield. They are also assisting in the development of a module for the OE/AAA program to accommodate specific enhancements for Air Force requirements. She indicated as of now this system does not apply to OCONUS installations.

12.2. Ms. Johnson discussed use of the FAA form 7460-1, *Notice of Proposed Construction or Alteration of Objects Affecting Navigable Airspace*, who fills it out, when it should be used, etc. She also indicated the form is available on the FAA Web-site. The group suggested she try to have the AFREP office coordinate development of Geographic Information System format with input from bases and MAJCOMs so their mapping products can be used in place of CE mapping-E Tabs.

13. NIMA Airfield Survey.

13.1. Mr. Snowden of the National Imagery and Mapping Agency (NIMA) introduced himself to the group and described NIMA's airfield survey initiative. He indicated the effort was undertaken as a result of Secretary Brown's fatal mishap. NIMA has undertaken to upgrade surveys of airfield obstructions for CONUS and overseas airfields and airports to establish map accuracy necessary to accommodate GPS approaches. (See briefing titled "AORI NIMA - Snowden.ppt.)

14. MAJCOM Prioriotization Strategies.

14.1. Lt Col Kaisler asked the MAJCOM representatives to share with the group their command strategies for removing obstructions. Their inputs were as follows:

- Mr. John Baie (AFMC) reported 495 obstructions at $1.5B, with Tinker alone at 368 projects. ORM was applied and at two bases wing commander approval obtained. The Clear Zone and the 1000' set back are the top two problem areas within AFMC. Mr. Baie expressed concern that obstruction removal would not be given due weight in funding priorities until a relationship is established with the Facility Investment Metric (FIM) rating.

- Major Scott Jarvis (PACAF) indicated their strategy was to follow through with their Airfield Obstruction Reduction Program (AORP) which identifies obstructions by risk and cost. They indicate they have high confidence in the numbers and their program.

- Mr. Dennis Diamonti (ACC) indicated he feared the costs reported by their bases were questionable: $1.2B with 1033 obstructions. The ACC working group is using the PACAF AORP as a model but they are still making adjustments. He indicated there was some debate among the ACC staff to use Wing Commanders priorities instead. Normally, they disperse funds to installations based on the Wing Commander's priorities. He indicated unless HQ USAF establishes separate funding resource, they will probably fund obstruction removal in the usual way. He indicated the CE community at ACC bases received very little support from other offices (AM/SE) during the data collection and ORM evaluation effort. Mr. Diamonti also echoed Mr. Baie's comments regarding FIM.

- Mr. Flahive indicated AMC had 446 obstructions across their bases. He also expressed a lack of confidence with the project cost estimates. He indicated there were some inconsistencies with data; for example, non-frangible approach lights were ORM ranked high at some bases while other bases ranked them low. He also expressed concern with Facility Infrastructure Matrix ratings not correlating with the ORM rankings.

- Mr. Geno Patriarca had previously briefed USAFE's overall program but added they spent $2.3M last year correcting waivers and would like to spend $2M per year for the foreseeable out-years.

- Lt Col John Boreland briefed AETC had 937 obstructions. He indicated low confidence in the estimated project costs and indicated they had inconsistencies in their ORM ratings. He

said the predominant issue at their bases appeared to be trees in the clear zones. AETC has established an airfield IPT to review and track these problems but they will rely on the Wing Commander's established priorities for funding corrective actions.

- Major Tracy Ruger (ANG) indicated they too needed to review and fine tune their data submission. Most O&M projects for corrective action are programmed for FY 03 and 04 with MILCON for the FYDP. The small items (low cost) are being taken care of by the end of FY 00 or 01. There are inconsistencies in the FIM and ORM ratings, but the ANG staff plan to review and address those issues. Frangibility and Clear zone seem to be the predominant problem areas.

- Mr. Dennis Sroczynski indicated AFRC only reported on the four bases they have that are DOD owned and controlled. Among those, they had 86 obstructions.

- MSgt Leroy indicated SPACECOM used the PACAF model to perform ORM. He also indicated a concern this data call had not addressed all airfield violations. Dollar amount reported thus far was $42M but this total is not complete.

15. Airfield Checklist

15.1. MSgt Verned Jackson, HQ AFFSA/XAO, briefed their efforts to develop and implement a standardized airfield inspection checklist (see briefing titled "AORI AfldInspCklst-AFFSA-Jackson.ppt). He indicated they had coordinated the checklist with AFCESA/CES, and planned to send it to the MAJCOMs for review and coordination before asking the Air Staff to approve implementation. The intent is to have a cross-functional inspection team made up of representatives from Airfield Management, Civil Engineering, and Safety, accomplish an annual inspection (already required by AFI 13-213, *Airfield Management*). Wing Safety would consolidate inputs and provide the report to the Wing/CC along with an Operational Risk Assessment on the hazards. Safety would brief results at Airfield Operations Board (AOB). CE would determine maintenance/construction needed to correct deficiencies. They also propose the results of these inspections be sent from Wing/CC to MAJCOM/DO/SE/CE. Annually MAJCOM/CE would consolidate status of all airfields and forward to AF/ILE. AF/ILE would review MAJCOM reports and proposed corrective action, and forward to AF/XOO. AF/XOO-CA will verify compliance of airfields with USAF standards to validate FAR Part 139 Airport Operating Certificates (AOCs) and forward to the FAA. The rational for their proposal is currently there is no true checklist and no 'formal' process for reporting airfield discrepancies to the Wing, MAJCOM, and Air Staff. They are proposing implementation in July 00.

15.2. Some members of the group indicated they felt the proposed process would place a heavy load on CE. The group agreed the proposed checklist would be a good tool and should be joint and tighter in guidelines; however, they felt the proposed process for moving it up the chain will cause a problem. The group felt this could be resolved through the coordination process.

16. New Initiatives.

16.1. Mr. Ates briefed the new initiatives AFCESA is working with AFFSA. Specifically, AFFSA had asked the airfield waiver process be tightened by requiring Wing Commander involvement in all airfield waiver requests. He indicated he had informally polled the commands and learned this is already occurring due to the requirement for cross-functional coordination on all waivers; however, AFCESA has agreed to change the process outline in AFMAN 32-1123 to institutionalize the requirement. He also indicated AFFSA had asked AFMAN 32-1123 be changed to include the requirement for the cross-functional airfield inspection and the standardized airfield inspection checklist. He cautioned we should not try to use Part 139 as the benchmark for the checklist due to unrealistic requirements within FAR Part 139. For example, Part 139 requires the Runway Safety Areas (an area 500-feet wide centered on the runway from end to end) of all airports be capable of supporting the weight of an aircraft under dry conditions. This requirement is unrealistic because California Bearing Ratios (CBRs) cannot be maintained on unpaved surfaces through freeze-thaw cycles and periods of precipitation. Further, there is no standard by which this requirement can be tested or validated.

16.2. Mr. Ates also discussed AFCESA's efforts to assist the MAJCOM in providing training for base-level personnel and described an effort he had undertaken to obtain funding to develop a computer-based interactive training program by contract. He also detailed the success of a traveling training workshop he helped PACAF conduct. He indicated he had programmed TDY funds to participate in three regional training seminars proposed by HQ ACC/CEP and HQ AMC/CEP. He indicated dates and locations for these seminars were yet to be determined and would have to wait until the Tiger Team had completed their report to the Air Staff on the Airfield Obstruction Reduction Initiative.

17. Build CE/DO/SE Workgroups.

17.1. At this point in the meeting, three sub-groups were assembled to study specific issues and make recommendation to the working group. The three groups were:

- Policy and Criteria Improvements
- Annual Waiver Review Process, and Training Improvements
- Airfield Obstruction Reduction Prioritization Strategy Development

17.2. The three groups met separately for the remainder of the afternoon and up through 1200 hours on 25 May. The purpose of these subgroup meetings was to identify deficiencies in their respective assigned areas and begin developing recommendations for improvement.

18. At approximately 1300, 25 May, the groups reassembled in the Main Conference Room to summarize their findings and recommendations. See the following briefing titles for their findings and recommendations:

- Airfield Obstruction Reduction Prioritization Strategy -- See "AORI AF Obstr Removal Pri Strat-Kaisler-Laushine.ppt"

- Annual Waiver Review Process and Training Improvements -- See "AORI training WG -- Rogers-McCann.ppt" and "AORI Waiver Process WG-Rogers-McCann.ppt"

- Policy and Criteria Improvements -- See "AORI Policy-criteria working group-Ates-Engelman.ppt"

19. Prior to wrap-up, Mr. Geno Patriarca briefed the Airfield Obstruction Management System (AOMS) developed by HQ ACC for their bases under contract. He explained the Access program was developed to track airfield obstructions by linking a photograph and map icon with the table entry for the obstruction details. The software needed to run the program is Microsoft Access and Arcview and is available off-the-shelf. Mr. Patriarca was the community planner at Davis Monthan AFB AZ, the beta test base for this program. He indicated it is very helpful for the annual waiver submission/revalidation effort. Mr. Diamonti indicated ACC spends months on generating waiver data and this program could shorten that time and improve accuracy within the records. Mr. Patriarca indicated USAFE intends adopting the same system.

20. Lt. Col. Kaisler closed the meeting by thanking all attendees for their participation and the hard work.